THE ASTROPHYSICAL JOURNAL

CONTENTS OF VOLUME 656, PART 1

2007 FEBRUARY 10, NUMBER 1

	Page
THE PHYSICAL NATURE OF REST-UV GALAXY MORPHOLOGY DURING THE PEAK EPOCH OF GALAXY FORMATION *David R. Law, Charles C. Steidel, Dawn K. Erb, Max Pettini, Naveen A. Reddy, Alice E. Shapley, Kurt L. Adelberger, & David J. Simenc*	1
CROSS-CORRELATION LENSING: DETERMINING GALAXY AND CLUSTER MASS PROFILES FROM STATISTICAL WEAK-LENSING MEASUREMENTS *David E. Johnston, Erin S. Sheldon, Angyro Tasitsiomi, Joshua A. Frieman, Risa H. Wechsler, & Timothy A. McKay*	27
THE REST-FRAME OPTICAL LUMINOSITY FUNCTIONS OF GALAXIES AT $2 \leq z \leq 3.5$ ⓔ *D. Marchesini, P. van Dokkum, R. Quadri, G. Rudnick, M. Franx, P. Lira, S. Wuyts, E. Gawiser, D. Christlein, & S. Toft*	42
NICMOS IMAGING OF DRGs IN THE HDF-S: A RELATION BETWEEN STAR FORMATION AND SIZE AT $z \sim 2.5$ *Andrew W. Zirm, A. van der Wel, M. Franx, I. Labbé, I. Trujillo, P. van Dokkum, S. Toft, E. Daddi, G. Rudnick, H.-W. Rix, H. J. A. Röttgering, & P. van der Werf*	66
BROAD ABSORPTION LINE VARIABILITY IN REPEAT QUASAR OBSERVATIONS FROM THE SLOAN DIGITAL SKY SURVEY ⓔ *Britt F. Lundgren, Brian C. Wilhite, Robert J. Brunner, Patrick B. Hall, Donald P. Schneider, Donald G. York, Daniel E. Vanden Berk, & Jonathan Brinkmann*	73
X-RAY PROPERTIES OF INTERMEDIATE-MASS BLACK HOLES IN ACTIVE GALAXIES *Jenny E. Greene & Luis C. Ho*	84
LARGE-SCALE PARKER WINDS IN ACTIVE GALACTIC NUCLEI ⓔ *John E. Everett & Norm Murray*	93
CHANDRA OBSERVATIONS OF CANDIDATE "TRUE" SEYFERT 2 NUCLEI *Himel Ghosh, Richard W. Pogge, Smita Mathur, Paul Martini, & Joseph C. Shields*	105
THE ENERGY-DEPENDENT X-RAY TIMING CHARACTERISTICS OF THE NARROW-LINE SEYFERT 1 Mrk 766 *A. Markowitz, I. Papadakis, P. Arévalo, T. J. Turner, L. Miller, & J. N. Reeves*	116
ON THE PUTATIVE DETECTION OF $z > 0$ X-RAY ABSORPTION FEATURES IN THE SPECTRUM OF Mrk 421 ⓔ *Andrew P. Rasmussen, Steven M. Kahn, Frits Paerels, Jan Willem den Herder, Jelle Kaastra, & Cor de Vries*	129
THE CLUSTERING OF MASSIVE HALOS ⓔ *Andrew R. Wetzel, J. D. Cohn, Martin White, Daniel E. Holz, & Michael S. Warren*	139
OBSERVATIONS OF ULTRALUMINOUS INFRARED GALAXIES WITH THE INFRARED SPECTROGRAPH ON THE *SPITZER SPACE TELESCOPE*. II. THE *IRAS* BRIGHT GALAXY SAMPLE *L. Armus, V. Charmandaris, J. Bernard-Salas, H. W. W. Spoon, J. A. Marshall, S. J. U. Higdon, V. Desai, H. I. Teplitz, L. Hao, D. Devost, B. R. Brandl, Y. Wu, G. C. Sloan, B. T. Soifer, J. R. Houck, & T. L. Herter*	148
THE LOCALIZED CHEMICAL POLLUTION IN NGC 5253 REVISITED: RESULTS FROM DEEP ECHELLE SPECTROPHOTOMETRY ⓔ *Ángel R. López-Sánchez, César Esteban, Jorge García-Rojas, Manuel Peimbert, & Mónica Rodríguez*	168
THE OXYGEN ABUNDANCE IN THE INNER H II REGIONS OF M101: IMPLICATIONS FOR THE CALIBRATION OF STRONG-LINE METALLICITY INDICATORS *Fabio Bresolin*	186
GREEN BANK TELESCOPE OBSERVATIONS OF THE WATER MASERS OF NGC 3079: ACCRETION DISK MAGNETIC FIELD AND MASER SCINTILLATION *W. H. T. Vlemmings, H. E. Bignall, & P. J. Diamond*	198
THE STAR FORMATION HISTORY OF THE VIRGO EARLY-TYPE GALAXY NGC 4435: THE *SPITZER* MID-INFRARED VIEW ⓔ *P. Panuzzo, O. Vega, A. Bressan, L. Buson M. Clemens, R. Rampazzo, L. Silva, J. R. Valdés, G. L. Granato, & L. Danese*	206
NONLINEAR PARALLEL DIFFUSION OF CHARGED PARTICLES: EXTENSION TO THE NONLINEAR GUIDING CENTER THEORY *G. Qin*	217
FRACTAL DIMENSION OF INTERSTELLAR CLOUDS: OPACITY AND NOISE EFFECTS *Néstor Sánchez, Emilio J. Alfaro, & Enrique Pérez*	222

Page

STRUCTURE GENERATION BY IRRADIATION: WHAT CAN GLIMPSE TEACH US ABOUT THE ISM STRUCTURE? 227
Fabian Heitsch, Barbara A. Whitney, Remy Indebetouw, Marilyn R. Meade, Brian L. Babler, & Ed Churchwell

A GLIMPSE OF THE SOUTHERN JELLYFISH NEBULA AND ITS MASSIVE YSO 242
E. P. Mercer, D. P. Clemens, J. M. Rathborne, M. R. Meade, B. L. Babler, R. Indebetouw, B. A. Whitney, C. Watson, M. G. Wolfire, M. J. Wolff, T. M. Bania, R. A. Benjamin, M. Cohen, J. M. Dickey, J. M. Jackson, H. A. Kobulnicky, J. S. Mathis, S. R. Stolovy, B. Uzpen, & E. B. Churchwell

ON THE DISTANCE AND STRUCTURE OF W80 248
J. C. Cersosimo, R. J. Muller, S. Figueroa Vélez, N. Santiago Figueroa, P. Baez, & J. C. Testori

THE ARECIBO METHANOL MASER GALACTIC PLANE SURVEY. I. DATA ℗ 255
Jagadheep D. Pandian, Paul F. Goldsmith, & Avinash A. Deshpande

CAPTURE-FORMED BINARIES VIA ENCOUNTERS WITH MASSIVE PROTOSTARS 275
Nickolas Moeckel & John Bally

DUST RINGS AND FILAMENTS AROUND THE ISOLATED YOUNG STAR V1331 CYGNI 287
S. P. Quanz, D. Apai, & Th. Henning

CURRENT STAR FORMATION IN THE PERSEUS MOLECULAR CLOUD: CONSTRAINTS FROM UNBIASED SUBMILLIMETER AND MID-INFRARED SURVEYS 293
Jes K. Jørgensen, Doug Johnstone, Helen Kirk, & Philip C. Myers

CONTRIBUTION OF GRB EMISSION TO THE GeV EXTRAGALACTIC DIFFUSE GAMMA-RAY FLUX 306
S. Casanova, B. L. Dingus, & Bing Zhang

CAPTURING THE FIRE: FLAME ENERGETICS AND NEUTRONIZATION FOR TYPE Ia SUPERNOVA SIMULATIONS 313
A. C. Calder, D. M. Townsley, I. R. Seitenzahl, F. Peng, O. E. B. Messer, N. Vladimirova, E. F. Brown, J. W. Truran, & D. Q. Lamb

PROPAGATION OF THE FIRST FLAMES IN TYPE Ia SUPERNOVAE 333
M. Zingale & L. J. Dursi

ON THE EVOLUTION OF THERMONUCLEAR FLAMES ON LARGE SCALES ℗ 347
Ju Zhang, O. E. Bronson Messer, Alexei M. Khokhlov, & Tomasz Plewa

LINEAR GROWTH OF SPIRAL SASI MODES IN CORE-COLLAPSE SUPERNOVAE 366
John M. Blondin & Samantha Shaw

ON THE PROGENITOR OF SN 2005gl AND THE NATURE OF TYPE IIn SUPERNOVAE ℗ 372
Avishay Gal-Yam, D. C. Leonard, D. B. Fox, S. B. Cenko, A. M. Soderberg, D.-S. Moon, D. J. Sand, Weidong Li, Alexei V. Filippenko, G. Aldering, & Y. Copin

HEAVY-ELEMENT NUCLEOSYNTHESIS IN A COLLAPSAR ℗ 382
Shin-ichirou Fujimoto, Masa-aki Hashimoto, Kei Kotake, & Shoichi Yamada

TORSIONAL MAGNETIC OSCILLATIONS IN TYPE I X-RAY BURSTS 393
R. V. E. Lovelace, A. K. Kulkarni, & M. M. Romanova

SPIN-KICK CORRELATION IN NEUTRON STARS: ALIGNMENT CONDITIONS AND IMPLICATIONS ℗ 399
Chen Wang, Dong Lai, & J. L. Han

DISCOVERY OF FIVE RECYCLED PULSARS IN A HIGH GALACTIC LATITUDE SURVEY 408
B. A. Jacoby, M. Bailes, S. M. Ord, H. S. Knight, & A. W. Hotan

AN UNUSUAL PRECURSOR BURST WITH OSCILLATIONS FROM SAX J1808.4−3658 414
Sudip Bhattacharyya, & Tod E. Strohmayer

ROSSI X-RAY TIMING EXPLORER OBSERVATIONS OF THE FIRST TRANSIENT Z SOURCE XTE J1701−462: SHEDDING NEW LIGHT ON MASS ACCRETION IN LUMINOUS NEUTRON STAR X-RAY BINARIES 420
Jeroen Homan, Michiel van der Klis, Rudy Wijnands, Tomaso Belloni, Rob Fender, Marc Klein-Wolt, Piergiorgio Casella, Mariano Méndez, Elena Gallo, Walter H. G. Lewin, & Neil Gehrels

JOINT Hα AND X-RAY OBSERVATIONS OF MASSIVE X-RAY BINARIES. I. THE B SUPERGIANT SYSTEM LS I +65 010 = 2S 0114+650 ℗ 431
E. D. Grundstrom, J. L. Blair, D. R. Gies, W. Huang, M. V. McSwain, D. Raghavan, R. L. Riddle, J. P. Subasavage, D. W. Wingert, A. M. Levine, & R. A. Remillard

JOINT Hα AND X-RAY OBSERVATIONS OF MASSIVE X-RAY BINARIES. II. THE Be X-RAY BINARY AND MICROQUASAR LS I +61 303 ℗ 437
E. D. Grundstrom, S. M. Caballero-Nieves, D. R. Gies, W. Huang, M. V. McSwain, S. E. Rafter, R. L. Riddle, S. J. Williams, & D. W. Wingert

SPITZER IRS SPECTROSCOPY OF INTERMEDIATE POLARS: CONSTRAINTS ON MID-INFRARED CYCLOTRON EMISSION 444
Thomas E. Harrison, Ryan K. Campbell, Steve B. Howell, France A. Cordova, & Axel D. Schwope

INVESTIGATING BINARY PROPERTIES WITH NEXT-GENERATION MICROLENSING SURVEYS 456
Cheongho Han

AN X-RAY AND NEAR-INFRARED STUDY OF YOUNG STARS IN THE CARINA NEBULA ℗ 462
Kaushar Sanchawala, Wen-Ping Chen, Hsu-Tai Lee, You-Hua Chu, Yasushi Nakajima, Motohide Tamura, Daisuke Baba, & Shuji Sato

CONTENTS

	Page
PHOTOSPHERIC AND CHROMOSPHERIC ACTIVE REGIONS IN FOUR YOUNG SOLAR-TYPE STARS *K. Biazzo, A. Frasca, G. W. Henry, S. Catalano, & E. Marilli*	474
COMPUTING LIMB-DARKENING COEFFICIENTS FROM STELLAR ATMOSPHERE MODELS *David Heyrovský*	483
THE *SPITZER* c2d SURVEY OF LARGE, NEARBY, INTERSTELLAR CLOUDS. V. CHAMAELEON II OBSERVED WITH IRAC *Alicia Porras, Jes K. Jørgensen, Lori E. Allen, Neal J. Evans II, Tyler L. Bourke, Juan M. Alcalá, Michael M. Dunham, Geoffrey A. Blake, Nicholas Chapman, Lucas Cieza, Paul M. Harvey, Tracy L. Huard, David W. Koerner, Lee G. Mundy, Philip C. Myers, Deborah L. Padgett, Anneila I. Sargent, Karl R. Stapelfeldt, Peter Teuben, Ewine F. van Dishoeck, Zahed Wahhaj, & Kaisa E. Young*	493
FIRST HIGH-CONTRAST SCIENCE WITH AN INTEGRAL FIELD SPECTROGRAPH: THE SUBSTELLAR COMPANION TO GQ LUPI *Michael W. McElwain, Stanimir A. Metchev, James E. Larkin, Matthew Barczys, Christof Iserlohe, Alfred Krabbe, Andreas Quirrenbach, Jason Weiss, & Shelley A. Wright*	505
NEON FINE-STRUCTURE LINE EMISSION BY X-RAY IRRADIATED PROTOPLANETARY DISKS *Alfred E. Glassgold, Joan R. Najita, & Javier Igea*	515
COLLISIONAL PARTICLE DISKS *Yoram Lithwick & Eugene Chiang*	524
A POSSIBLE CORRELATION BETWEEN THE GASEOUS DRAG STRENGTH AND RESONANT PLANETESIMALS IN PLANETARY SYSTEMS *Ing-Guey Jiang & Li-Chin Yeh*	534
RADIUS AND STRUCTURE MODELS OF THE FIRST SUPER-EARTH PLANET *Diana Valencia, Dimitar D. Sasselov, & Richard J. O'Connell*	545
HAT-P-1b: A LARGE-RADIUS, LOW-DENSITY EXOPLANET TRANSITING ONE MEMBER OF A STELLAR BINARY © *G. Á. Bakos, R. W. Noyes, G. Kovács, D. W. Latham, D. D. Sasselov, G. Torres, D. A. Fischer, R. P. Stefanik, B. Sato, J. A. Johnson, A. Pál, G. W. Marcy, R. P. Butler, G. A. Esquerdo, K. Z. Stanek, J. Lázár, I. Papp, P. Sári, & B. Sipcz*	552
MULTISCALE HALL-MAGNETOHYDRODYNAMIC TURBULENCE IN THE SOLAR WIND *Sébastien Galtier & Eric Buchlin*	560
SOLAR RADIO BURST AND SOLAR WIND ASSOCIATIONS WITH INFERRED NEAR-RELATIVISTIC ELECTRON INJECTIONS *S. W. Kahler, H. Aurass, G. Mann, & A. Klassen*	567
A STATISTICAL MODEL OF THE INHOMOGENEOUS CORONA CONSTRAINED BY TRIPLE-FILTER MEASUREMENTS OF ELEMENTARY LOOP STRANDS WITH *TRACE* *Markus J. Aschwanden, Richard W. Nightingale, & Paul Boerner*	577
DETERMINATION OF THE CORONAL MAGNETIC FIELD FROM HOT-LOOP OSCILLATIONS OBSERVED BY SUMER AND SXT *Tongjiang Wang, Davina E. Innes, & Jiong Qiu*	598
EFFECTS OF HORIZONTAL MAGNETIC FIELDS ON ACOUSTIC TRAVEL TIMES *Rekha Jain*	610
INFRARED SPECTROSCOPY OF CALCIUM-ALUMINIUM-RICH INCLUSIONS: ANALOG MATERIAL FOR PROTOPLANETARY DUST? *Th. Posch, H. Mutschke, M. Trieloff, & Th. Henning*	615
AN EXPERIMENTAL APPROACH TO THE PREDICTION OF COMPLETE MILLIMETER AND SUBMILLIMETER SPECTRA AT ASTROPHYSICAL TEMPERATURES: APPLICATIONS TO CONFUSION-LIMITED ASTROPHYSICAL OBSERVATIONS © *Ivan R. Medvedev & Frank C. De Lucia*	621
ERRATUM: "INFRARED OBSERVATIONS OF THE HELIX PLANETARY NEBULA" (ApJ, 652, 426 [2006]) *Joseph L. Hora, William B. Latter, Howard A. Smith, & Massimo Marengo*	629

2007 FEBRUARY 20, NUMBER 2

AN ALTERNATIVE TO GRIDS AND GLASSES: QUAQUAVERSAL PRE-INITIAL CONDITIONS FOR *N*-BODY SIMULATIONS © *Steen H. Hansen, Oscar Agertz, Michael Joyce, Joachim Stadel, Ben Moore, & Doug Potter*	631
BROKEN ISOTROPY FROM A LINEAR MODULATION OF THE PRIMORDIAL PERTURBATIONS © *Christopher Gordon*	636
A REANALYSIS OF THE 3 YEAR *WILKINSON MICROWAVE ANISOTROPY PROBE* TEMPERATURE POWER SPECTRUM AND LIKELIHOOD *H. K. Eriksen, Greg Huey, R. Saha, F. K. Hansen, J. Dick, A. J. Banday, K. M. Górski, P. Jain, J. B. Jewell, L. Knox, D. L. Larson, I. J. O'Dwyer, T. Souradeep, & B. D. Wandelt*	641

Page

ESTIMATION OF POLARIZED POWER SPECTRA BY GIBBS SAMPLING 653
D. L. Larson, H. K. Eriksen, B. D. Wandelt, K. M. Górski, Greg Huey, J. B. Jewell, & I. J. O'Dwyer

ON THE ORIGIN OF THE TYPE Ia SUPERNOVA WIDTH-LUMINOSITY RELATION 661
Daniel Kasen & S. E. Woosley

THE KECK+MAGELLAN SURVEY FOR LYMAN LIMIT ABSORPTION. I. THE FREQUENCY DISTRIBUTION OF SUPER LYMAN LIMIT SYSTEMS © 666
John M. O'Meara, Jason X. Prochaska, Scott Burles, Gabriel Prochter, Rebecca A. Bernstein, & Kristin M. Burgess

THE RADIO-LOUD FRACTION OF QUASARS IS A STRONG FUNCTION OF REDSHIFT AND OPTICAL LUMINOSITY 680
Linhua Jiang, Xiaohui Fan, Željko Ivezić, Gordon T. Richards, Donald P. Schneider, Michael A. Strauss, & Brandon C. Kelly

LONG-TERM X-RAY SPECTRAL VARIABILITY OF THE RADIO-LOUD NARROW-LINE SEYFERT 1 GALAXY PKS 0558−504 © 691
M. Gliozzi, I. E. Papadakis, & W. P. Brinkmann

DYNAMICS OF THE NARROW-LINE REGION IN THE SEYFERT 2 GALAXY NGC 1068 699
V. Das, D. M. Crenshaw, & S. B. Kraemer

MASSIVE PERTURBER–DRIVEN INTERACTIONS BETWEEN STARS AND A MASSIVE BLACK HOLE © 709
Hagai B. Perets, Clovis Hopman, & Tal Alexander

STABILITY PROPERTIES OF MAGNETIC TOWER JETS 721
Masanori Nakamura, Hui Li, & Shengtai Li

REVISITING THE SOFT X-RAY EXCESS EMISSION IN CLUSTERS OF GALAXIES OBSERVED WITH *XMM-NEWTON* 733
J. Nevalainen, M. Bonamente, & J. Kaastra

THE SIZES OF GALAXY HALOS IN GALAXY CLUSTER ABELL 1689 739
A. Halkola, S. Seitz, & M. Pannella

THE RESOLVED STELLAR POPULATIONS OF A DWARF SPHEROIDAL GALAXY IN THE VIRGO CLUSTER 746
Patrick R. Durrell, Benjamin F. Williams, Robin Ciardullo, John J. Feldmeier, Ted von Hippel, Steinn Sigurdsson, George H. Jacoby, Henry C. Ferguson, Nial R. Tanvir, Mayda Arnaboldi, Ortwin Gerhard, J. Alfonso L. Aguerri, Ken Freeman, & Matt Vinciguerra

THE METALLICITY DISTRIBUTION OF INTRACLUSTER STARS IN VIRGO 756
Benjamin F. Williams, Robin Ciardullo, Patrick R. Durrell, Matt Vinciguerra, John J. Feldmeier, George H. Jacoby, Steinn Sigurdsson, Ted von Hippel, Henry C. Ferguson, Nial R. Tanvir, Mayda Arnaboldi, Ortwin Gerhard, J. Alfonso L. Aguerri, & Ken Freeman

THE MID-INFRARED SPECTRUM OF STAR-FORMING GALAXIES: GLOBAL PROPERTIES OF POLYCYCLIC AROMATIC HYDROCARBON EMISSION © 770
J. D. T. Smith, B. T. Draine, D. A. Dale, J. Moustakas, R. C. Kennicutt Jr., G. Helou, L. Armus, H. Roussel, K. Sheth, G. J. Bendo, B. A. Buckalew, D. Calzetti, C. W. Engelbracht, K. D. Gordon, D. J. Hollenbach, A. Li, S Malhotra, E. J. Murphy, & F. Walter

HCN VERSUS HCO^+ AS DENSE MOLECULAR GAS MASS TRACERS IN LUMINOUS INFRARED GALAXIES 792
Padeli P. Papadopoulos

SPECTROPOLARIMETRY OF THE 3.4 μm ABSORPTION FEATURE IN NGC 1068 798
R. E. Mason, G. S. Wright, A. Adamson, & Y. Pendleton

PROBING THE MASS DISTRIBUTIONS IN NGC 1407 AND ITS ASSOCIATED GROUP WITH THE X-RAY IMAGING SPECTROSCOPIC AND OPTICAL PHOTOMETRIC AND LINE-STRENGTH INDICES DATA 805
Zhongli Zhang, Haiguang Xu, Yu Wang, Tao An, Yucheng Xu, & Xiang-Ping Wu

A *SPITZER* IRAC CENSUS OF THE ASYMPTOTIC GIANT BRANCH POPULATIONS IN LOCAL GROUP DWARFS. I. WLM 818
Dale C. Jackson, Evan D. Skillman, Robert D. Gehrz, Elisha Polomski, & Charles E. Woodward

THE MASS DISTRIBUTION OF THE CENTRAL STARS OF PLANETARY NEBULAE IN THE LARGE MAGELLANIC CLOUD 831
Eva Villaver, Letizia Stanghellini, & Richard A. Shaw

OBTAINING COSMIC-RAY PROPAGATION PARAMETERS FROM DIFFUSE VERY HIGH ENERGY GAMMA-RAY EMISSION FROM THE GALACTIC CENTER RIDGE 841
I. Büsching, O. C. de Jager, & J. Snyman

THE ORIGIN OF DIFFUSE X-RAY AND γ-RAY EMISSION FROM THE GALACTIC CENTER REGION: COSMIC-RAY PARTICLES 847
F. Yusef-Zadeh, M. Muno, M. Wardle, & D. C. Lis

POTENTIAL NEUTRINO SIGNALS FROM GALACTIC γ-RAY SOURCES 870
Alexander Kappes, Jim Hinton, Christian Stegmann, & Felix A. Aharonian

ORBITAL EVOLUTION OF AN IMBH IN THE GALACTIC NUCLEUS WITH A MASSIVE CENTRAL BLACK HOLE 879
Tatsushi Matsubayashi, Junichiro Makino, & Toshikazu Ebisuzaki

GALACTIC INTERSTELLAR GAS CLOUD MASS FUNCTIONS: A SIMPLE QUANTITATIVE APPROACH 897
E. Casuso & J. E. Beckman

Page

RECONSTRUCTING DECONSTRUCTION: HIGH-VELOCITY CLOUD DISTANCE THROUGH DISRUPTION MORPHOLOGY 907
J. E. G. Peek, M. E. Putman, Christopher F. McKee, Carl Heiles, & Snežana Stanimirović

THE FRAGMENTING SUPERBUBBLE ASSOCIATED WITH THE H II REGION W4 914
Jennifer L. West, Jayanne English, Magdalen Normandeau, & T. L. Landecker

THE OPHIUCHUS SUPERBUBBLE: A GIGANTIC ERUPTION FROM THE INNER DISK OF THE MILKY WAY 928
Yurii Pidopryhora, Felix J. Lockman, & Joseph C. Shields

VLBA OBSERVATIONS OF G5.89−0.39: OH MASERS AND MAGNETIC FIELD STRUCTURE 943
D. P. Stark, W. M. Goss, E. Churchwell, V. L. Fish, & I. M. Hoffman

LARGE MAGNETIC FIELDS AND MOTIONS OF OH MASERS IN W75N 952
Vincent L. Fish & Mark J. Reid

RADIATION-HYDRODYNAMIC SIMULATIONS OF COLLAPSE AND FRAGMENTATION IN MASSIVE PROTOSTELLAR CORES Ⓔ 959
Mark R. Krumholz, Richard I. Klein, & Christopher F. McKee

MODELING *SPITZER* OBSERVATIONS OF VV SER. I. THE CIRCUMSTELLAR DISK OF A UX ORIONIS STAR Ⓔ 980
Klaus M. Pontoppidan, Cornelis P. Dullemond, Geoffrey A. Blake, A. C. Adwin Boogert, Ewine F. van Dishoeck, Neal J. Evans II, Jacqueline Kessler-Silacci, & Fred Lahuis

MODELING *SPITZER* OBSERVATIONS OF VV SER. II. AN EXTENDED QUANTUM-HEATED NEBULA AND A DISK SHADOW Ⓔ 991
Klaus M. Pontoppidan, Cornelis P. Dullemond, Geoffrey A. Blake, Neal J. Evans II, Vincent C. Geers, Paul M. Harvey, & William Spiesman

ON THE EARLY-TIME X-RAY SPECTRA OF *SWIFT* AFTERGLOWS. I. EVIDENCE FOR ANOMALOUS SOFT X-RAY EMISSION Ⓔ 1001
N. R. Butler

STABILITY OF ACCRETION FLOWS WITH STALLED SHOCKS IN CORE-COLLAPSE SUPERNOVAE 1019
Tatsuya Yamasaki & Shoichi Yamada

FURTHER EVIDENCE FOR COLLIMATED PARTICLE BEAMS FROM PULSARS AND PRECESSION 1038
Avinash A. Deshpande & V. Radhakrishnan

POLARIZATION OF HIGH-ENERGY EMISSION FROM THE CRAB PULSAR 1044
J. Takata, H.-K. Chang, & K. S. Cheng

EFFECTS OF DOWNSCATTERING ON THE CONTINUUM AND LINE SPECTRA IN A POWERFUL WIND ENVIRONMENT: MONTE CARLO SIMULATIONS, ANALYTICAL RESULTS, AND DATA ANALYSIS 1056
Philippe Laurent & Lev Titarchuk

REVEALING THE NATURE OF ALGOL DISKS THROUGH OPTICAL AND UV SPECTROSCOPY, SYNTHETIC SPECTRA, AND TOMOGRAPHY OF TT HYDRAE Ⓔ 1075
Brendan Miller, Ján Budaj, Mercedes Richards, Pavel Koubský, & Geraldine J. Peters

A FAR-ULTRAVIOLET STUDY OF THE NOVA-LIKE V794 AQUILAE Ⓔ 1092
Patrick Godon, Edward M. Sion, Paul Barrett, & Paula Szkody

NEUTRINO-ACCELERATED HOT HYDROGEN BURNING 1104
Chad T. Kishimoto & George M. Fuller

THE MOLECULAR ENVELOPE AROUND THE RED SUPERGIANT VY CMa 1109
S. Muller, Dinh-V-Trung, J. Lim, N. Hirano, C. Muthu, & S. Kwok

THE FIRST DIRECT MEASUREMENTS OF SURFACE MAGNETIC FIELDS ON VERY LOW MASS STARS Ⓔ 1121
A. Reiners & G. Basri

PHYSICAL PARAMETERS OF TWO VERY COOL T DWARFS Ⓔ 1136
D. Saumon, M. S. Marley, S. K. Leggett, T. R. Geballe, D. Stephens, D. A. Golimowski, M. C. Cushing, X. Fan, J. T. Rayner, K. Lodders, & R. S. Freedman

ADAPTIVE OPTICS IMAGING OF IRAS 18276−1431: A BIPOLAR PREPLANETARY NEBULA WITH CIRCUMSTELLAR "SEARCHLIGHT BEAMS" AND "ARCS" Ⓔ 1150
C. Sánchez Contreras, D. Le Mignant, R. Sahai, A. Gil de Paz, & M. Morris

A CHECK FOR CONSISTENCY BETWEEN DIFFERENT MAGNETIC HELICITY MEASUREMENTS BASED ON THE HELICITY CONSERVATION PRINCIPLE 1167
Eun-Kyung Lim, Hyewon Jeong, Jongchul Chae, & Yong-Jae Moon

PHOTOSPHERIC MAGNETIC FIELD PROPERTIES OF FLARING VERSUS FLARE-QUIET ACTIVE REGIONS. IV. A STATISTICALLY SIGNIFICANT SAMPLE 1173
K. D. Leka & G. Barnes

A *TRACE* WHITE LIGHT AND *RHESSI* HARD X-RAY STUDY OF FLARE ENERGETICS Ⓔ 1187
L. Fletcher, I. G. Hannah, H. S. Hudson, & T. R. Metcalf

Page

AN Hα SURGE PROVOKED BY MOVING MAGNETIC FEATURES NEAR AN EMERGING FLUX REGION © 1197
D. H. Brooks, H. Kurokawa, & T. E. Berger

PRESOLAR He AND Ne ISOTOPES IN SINGLE CIRCUMSTELLAR SiC GRAINS 1208
Philipp R. Heck, Kuljeet K. Marhas, Peter Hoppe, Roberto Gallino, Heinrich Baur, & Rainer Wieler

CHARACTERIZATION OF PRESOLAR SILICATE AND OXIDE GRAINS IN PRIMITIVE CARBONACEOUS CHONDRITES 1223
Ann N. Nguyen, Frank J. Stadermann, Ernst Zinner, Rhonda M. Stroud, Conel M. O'D. Alexander, & Larry R. Nittler

ERRATUM: "EVIDENCE FOR TP-AGB STARS IN HIGH-REDSHIFT GALAXIES, AND THEIR EFFECT ON DERIVING STELLAR POPULATION PARAMETERS" (ApJ, 652, 85 [2006]) 1241
C. Maraston, E. Daddi, A. Renzini, A. Cimatti, M. Dickinson, C. Papovich, A. Pasquali, & N. Pirzkal

THE ASTROPHYSICAL JOURNAL LETTERS

CONTENTS OF VOLUME 656, PART 2

2007 FEBRUARY 10, NUMBER 1

	Page
A SEARCH FOR LYMAN BREAK GALAXIES AT $z > 8$ IN THE NICMOS PARALLEL IMAGING SURVEY *Alaina L. Henry, Matthew A. Malkan, James W. Colbert, Brian Siana, Harry I. Teplitz, Patrick McCarthy, and Lin Yan*	L1
INFLATING FAT BUBBLES IN CLUSTERS OF GALAXIES BY WIDE JETS Ⓔ *Assaf Sternberg, Fabio Pizzolato, and Noam Soker*	L5
GRAVITATIONAL RECOIL VELOCITIES FROM ECCENTRIC BINARY BLACK HOLE MERGERS Ⓔ *Carlos F. Sopuerta, Nicolás Yunes, and Pablo Laguna*	L9
DISCOVERY OF AN UNUSUAL DWARF GALAXY IN THE OUTSKIRTS OF THE MILKY WAY *M. J. Irwin, V. Belokurov, N. W. Evans, E. V. Ryan-Weber, J. T. A. de Jong, S. Koposov, D. B. Zucker, S. T. Hodgkin, G. Gilmore, P. Prema, L. Hebb, A. Begum, M. Fellhauer, P. C. Hewett, R. C. Kennicutt, Jr., M. I. Wilkinson, D. M. Bramich, S. Vidrih, H.-W. Rix, T. C. Beers, J. C. Barentine, H. Brewington, M. Harvanek, J. Krzesinski, D. Long, A. Nitta, and S. A. Snedden*	L13
ANISOTROPIC CASCADES IN INTERSTELLAR MEDIUM TURBULENCE Ⓔ *Dastgeer Shaikh and Gary P. Zank*	L17
TOWARD MAPPING THE DETAILED DENSITY STRUCTURE OF CLASSICAL Be CIRCUMSTELLAR DISKS *J. P. Wisniewski, A. F. Kowalski, K. S. Bjorkman, J. E. Bjorkman, and A. C. Carciofi*	L21
OVERCOMING MIGRATION DURING GIANT PLANET FORMATION Ⓔ *Edward W. Thommes, Leif Nilsson, and Norman Murray*	L25
MULTIPLE FORMATION OF CHONDRULES IN THE EARLY SOLAR SYSTEM: CHRONOLOGY OF A COMPOUND Al-RICH CHONDRULE *T. Akaki, T. Nakamura, T. Noguchi, and A. Tsuchiyama*	L29
NITROGEN AND CARBON ISOTOPIC COMPOSITION OF THE SUN INFERRED FROM A HIGH-TEMPERATURE SOLAR NEBULAR CONDENSATE Ⓔ *Anders Meibom, Alexander N. Krot, François Robert, Smail Mostefaoui, Sara S. Russell, Michael I. Petaev, and Matthieu Gounelle*	L33
THE POST–CORONAL MASS EJECTION SOLAR ATMOSPHERE AND RADIO NOISE STORM ACTIVITY *C. Kathiravan, R. Ramesh, and H. S. Nataraj*	L37
DOPPLER VELOCITIES MEASURED IN CORONAL EMISSION LINES FROM A BRIGHT POINT OBSERVED WITH THE EUNIS SOUNDING ROCKET Ⓔ *Jeffrey W. Brosius, Douglas M. Rabin, and Roger J. Thomas*	L41
ANTICORRELATION BETWEEN MOVING MAGNETIC FEATURES AND CORONAL LOOP FORMATION *M. P. Ryutova, H. Hagenaar, and A. Title*	L45
INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION	*Inside Back Cover*
INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION	*Back Cover*

2007 FEBRUARY 20, NUMBER 2

	Page
THE GAMMA-RAY BURST LUMINOSITY FUNCTION IN THE LIGHT OF THE *SWIFT* 2 YEAR DATA *R. Salvaterra and G. Chincarini*	L49
GENERALIZED TESTS FOR EIGHT GRB LUMINOSITY RELATIONS *Bradley E. Schaefer and Andrew C. Collazzi*	L53
A TWO-COMPONENT JET MODEL FOR THE X-RAY AFTERGLOW FLAT SEGMENT IN THE SHORT GAMMA-RAY BURST GRB 051221A *Z. P. Jin, T. Yan, Y. Z. Fan, and D. M. Wei*	L57
EVIDENCE FOR TIDAL EFFECTS IN THE STELLAR DYNAMICS OF THE LARGE MAGELLANIC CLOUD *Knut A. G. Olsen and Philip Massey*	L61
WHY HAVEN'T LOOSE GLOBULAR CLUSTERS COLLAPSED YET? *Guido De Marchi, Francesco Paresce, and Luigi Pulone*	L65

DISCOVERY OF VARIABLE IRON FLUORESCENCE FROM REFLECTION NEBULAE IN THE GALACTIC CENTER L69
M. P. Muno, F. K. Baganoff, W. N. Brandt, S. Park, and M. R. Morris

GERMANIUM PRODUCTION IN ASYMPTOTIC GIANT BRANCH STARS: IMPLICATIONS FOR OBSERVATIONS OF PLANETARY NEBULAE Ⓔ L73
Amanda I. Karakas, Maria Lugaro, and Roberto Gallino

SPECTROSCOPY OF SMC WOLF-RAYET STARS SUGGESTS THAT WIND CLUMPING DOES NOT DEPEND ON AMBIENT METALLICITY L77
S. V. Marchenko, C. Foellmi, A. F. J. Moffat, F. Martins, J.-C. Bouret, and E. Depagne

THE MORPHOLOGY OF M17-UC1: A DISK CANDIDATE SURROUNDING A HYPERCOMPACT H II REGION Ⓔ L81
M. Nielbock, R. Chini, V. H. Hoffmeister, C. M. Scheyda, J. Steinacker, D. Nürnberger, and R. Siebenmorgen

THE PROTOSTAR IN THE MASSIVE INFRARED DARK CLOUD IRDC 18223-3 L85
H. Beuther and J. Steinacker

THE INTERNAL ENERGY FOR MOLECULAR HYDROGEN IN GRAVITATIONALLY UNSTABLE PROTOPLANETARY DISKS Ⓔ L89
Aaron C. Boley, Thomas W. Hartquist, Richard H. Durisen, and Scott Michael

COLD CO GAS IN PROTOPLANETARY DISKS L93
Yuri Aikawa

GAS ABSORPTION DETECTED FROM THE EDGE-ON DEBRIS DISK SURROUNDING HD 32297 L97
Seth Redfield

CORONAL "WAVE": MAGNETIC FOOTPRINT OF A CORONAL MASS EJECTION? L101
Gemma D. R. Attrill, Louise K. Harra, Lidia van Driel-Gesztelyi, and Pascal Démoulin

IDENTIFICATION OF A PECULIAR RADIO SOURCE IN THE AFTERMATH OF LARGE CORONAL MASS EJECTION EVENTS Ⓔ L105
Angelos Vourlidas, Monique Pick, Sang Hoang, and Pascal Démoulin

INSTRUCTIONS TO AUTHORS OF LETTERS, AND ADDITIONAL USEFUL INFORMATION *Inside Back Cover*

INSTRUCTIONS FOR ELECTRONIC MANUSCRIPT SUBMISSION *Back Cover*